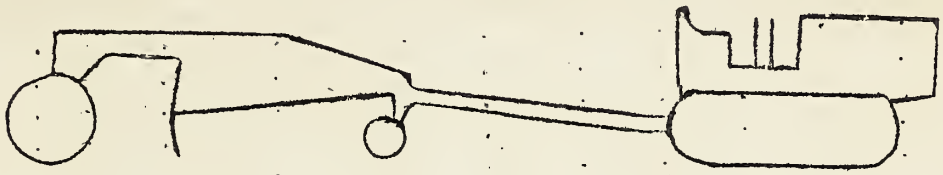
CONSTRUCTION



HINTS

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE

Vol. 1 Washington, D. C. July 27, 1935. No. 6

One of the Forests in Region 9 has developed a tabular chart indicating tangent offsets at proportional distances for curves of 100 ft. tangent distance. This table was figured on the basis of a true curve and approximate formulas were not used. The table has been checked and it is found to be correct within the closest tenth. It is believed the chart is self-explanatory except that there may be some confusion in the interpretation of the column headed "P.I." The P.I. represents the tangent offset at the point of intersection which equals the perpendicular distance from the tangent at that point to the curve. The diagram indicates how the table may be used for tangents of greater length than 100 ft..

You may find the chart helpful in your truck trail location work.

H.L.F.

Region 9 furnished the material for this issue. Region 8 furnished material for the last issue. WHO'S NEXT?

(Over)

TANGENT OFFSETS AT PROPORTIONAL DISTANCES FOR CURVES OF 100 FT. TANGENT DISTANCE

I°	1/6	1/4	1/3	1/2	2/3	3/4	5/6	P.I.	Ext.	Radius	Length of Curve	2/10	4/10	6/10	8/10
1	-	-	.1	.1	.2	.2	.3	.4	.4	11457.5	199.9	-	.1	.2	.3
2	-	-	.1	.2	.4	.5	.6	.8	.9	5727.4	199.9	-	.1	.3	.6
3	-	-	.1	.3	.6	.7	.9	1.3	1.3	3818.2	199.9	-	.2	.5	.9
4	-	-	.2	.4	.8	1.0	1.2	1.7	1.7	2863.7	199.9	-	.3	.6	1.2
5	.1	.1	.2	.6	1.0	1.2	1.5	2.2	2.2	2290.4	199.9	.1	.4	.8	1.5
6	.1	.1	.3	.7	1.2	1.4	1.8	2.6	2.6	1908.0	199.8	.1	.5	.9	1.7
7	.1	.1	.3	.8	1.4	1.7	2.1	3.1	3.0	1635.0	199.7	.1	.5	1.1	1.9
8	.1	.2	.4	.9	1.6	1.9	2.4	3.5	3.5	1430.0	199.6	.2	.6	1.3	2.2
9	.1	.2	.4	1.0	1.8	2.1	2.7	3.9	3.9	1270.6	199.5	.2	.7	1.5	2.5
10	.1	.3	.5	1.1	2.0	2.4	3.0	4.4	4.4	1143.0	199.5	.2	.8	1.6	2.8
11	.1	.3	.5	1.2	2.2	2.7	3.3	4.8	4.8	1038.5	199.3	.2	.8	1.7	3.0
12	.2	.3	.6	1.3	2.4	2.9	3.6	5.3	5.2	951.5	199.2	.2	.9	1.9	3.3
13	.2	.3	.6	1.5	2.6	3.2	3.9	5.7	5.7	877.9	199.1	.2	1.0	2.1	3.6
14	.2	.4	.7	1.6	2.8	3.4	4.2	6.1	6.1	814.5	199.0	.3	1.1	2.2	3.9
15	.2	.4	.7	1.7	3.0	3.7	4.5	6.6	6.6	759.6	198.8	.3	1.1	2.4	4.2
16	.2	.4	.8	1.8	3.2	4.0	4.8	7.1	7.0	711.5	198.6	.3	1.2	2.5	4.5
17	.2	.4	.8	1.9	3.4	4.2	5.1	7.5	7.4	669.1	198.5	.3	1.2	2.7	4.8
18	.2	.5	.9	2.0	3.6	4.5	5.4	8.0	7.9	631.4	198.3	.3	1.3	2.9	5.2
19	.2	.5	.9	2.1	3.8	4.7	5.7	8.4	8.3	597.6	198.1	.3	1.3	3.0	5.5
20	.3	.5	1.0	2.2	4.0	5.0	6.1	8.9	8.7	567.1	198.0	.4	1.4	3.2	5.8
21	.3	.5	1.0	2.3	4.2	5.3	6.4	9.4	9.2	539.5	197.7	.4	1.4	3.3	6.0
22	.3	.6	1.1	2.5	4.4	5.5	6.7	9.8	9.6	514.4	197.5	.4	1.5	3.5	6.3
23	.3	.6	1.1	2.6	4.6	5.8	7.0	10.3	10.1	491.5	197.3	.4	1.6	3.7	6.6
24	.3	.7	1.2	2.7	4.8	6.0	7.4	10.7	10.5	470.4	197.0	.4	1.7	3.8	6.9
25	.3	.7	1.2	2.8	5.0	6.3	7.8	11.2	11.0	451.1	196.8	.4	1.8	4.0	7.2
26	.3	.8	1.3	2.9	5.2	6.5	8.1	11.6	11.4	433.1	196.5	.4	1.8	4.2	7.5
27	.3	.8	1.3	3.1	5.4	6.8	8.4	12.1	11.8	416.5	196.2	.5	1.9	444	7.8
28	.4	.8	1.4	3.2	5.6	7.0	8.7	12.6	12.3	401.1	196.0	.5	2.0	4.5	8.1
29	.4	.8	1.4	3.3	5.8	7.3	9.0	13.1	12.7	386.7	195.7	.5	2.0	4.7	8.4
30	.4	.9	1.5	3.4	6.0	7.5	9.4	13.6	13.2	373.2	195.4	.5	2.1	4.9	8.7
31	.4	.9	1.5	3.5	6.2	7.8	9.7	14.1	13.6	360.6	195.1	.5	2.1	5.0	9.0
32	.4	.9	1.6	3.6	6.4	8.1	10.0	14.6	14.1	348.7	194.7	.6	2.2	5.2	9.3
33	.4	.9	1.6	3.7	6.6	8.3	10.3	15.1	14.5	337.6	194.4	.6	2.3	5.4	9.6
34	.4	1.0	1.7	3.9	6.8	8.6	10.7	15.6	14.9	327.1	194.1	.6	2.4	5.5	9.9
35	.4	1.0	1.7	4.0	7.1	8.9	11.1	16.2	15.4	317.2	193.7	.6	2.5	5.7	10.2
36	.5	1.0	1.8	4.1	7.3	9.1	11.4	16.7	15.8	307.8	193.4	.6	2.6	5.9	10.5
37	.5	1.0	1.8	4.2	7.5	9.4	11.7	17.2	16.3	298.9	193.0	.7	2.6	6.0	10.8
38	.5	1.1	1.9	4.3	7.7	9.7	12.1	17.7	16.7	290.4	192.6	.7	2.7	6.2	11.1
39	.5	1.1	1.9	4.4	7.9	10.0	12.5	18.3	17.2	282.4	192.2	.7	2.8	6.4	11.5
40	.5	1.1	2.0	4.5	8.2	10.3	12.9	18.9	17.6	274.8	191.8	.7	2.9	6.6	11.9
41	.5	1.1	2.0	4.7	8.4	10.6	13.2	19.4	18.1	267.4	191.3	.7	2.9	6.8	12.2
42	.5	1.2	2.1	4.8	8.6	11.0	13.6	19.9	18.5	260.5	190.9	.8	3.0	7.0	12.5
43	.6	1.2	2.1	4.9	8.8	11.3	14.0	20.5	19.0	253.9	190.5	.8	3.1	7.2	12.8
44	.6	1.3	2.2	5.0	9.1	11.6	14.4	21.1	19.4	247.5	190.0	.8	3.2	7.4	13.1
45	.6	1.3	2.3	5.1	9.4	11.9	14.8	21.7	19.9	241.4	189.6	.8	3.3	7.5	13.5

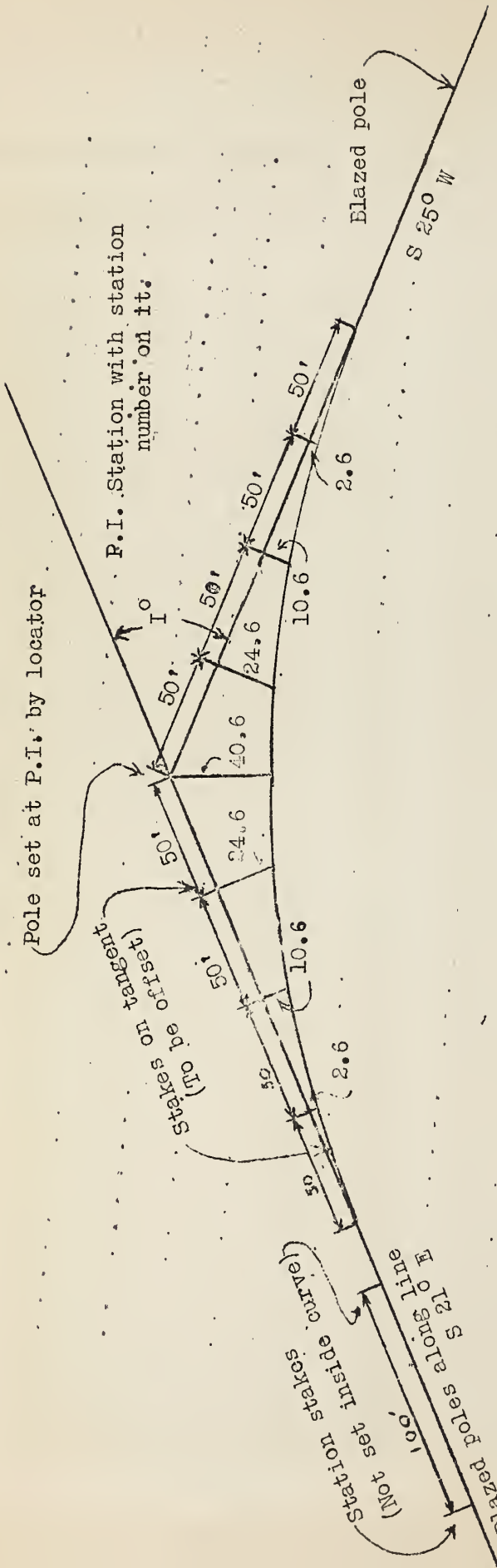
TANGENT OFFSETS - Cont'd.

I°	1/6	1/4	1/3	1/2	2/3	3/4	5/6	P.I.	Ext.	Radius	Length of Curve	2/10	4/10	6/10	8/10
46	.6	1.3	2.4	5.3	9.6	12.3	15.2	22.3	20.3	235.6	189.1	.8	3.4	7.7	13.9
47	.6	1.4	2.4	5.4	9.9	12.6	15.6	22.9	20.8	230.0	188.6	.9	3.5	7.9	14.3
48	.6	1.4	2.5	5.6	10.1	12.9	16.0	23.5	21.3	224.6	188.1	.9	3.6	8.1	14.7
49	.7	1.4	2.5	5.7	10.4	13.2	16.4	24.1	21.7	219.4	187.6	.9	3.7	8.4	15.1
50	.7	1.5	2.6	5.9	10.7	13.6	16.8	24.7	22.2	214.5	187.1	.9	3.8	8.6	15.5
51	.7	1.5	2.7	6.0	10.9	13.9	17.2	25.3	22.6	209.6	186.5	.9	3.9	8.8	15.9
52	.7	1.5	2.7	6.2	11.2	14.3	17.6	25.9	23.1	205.0	186.0	1.0	4.0	9.0	16.3
53	.7	1.6	2.8	6.3	11.4	14.7	18.0	26.6	23.6	200.6	185.5	1.0	4.1	9.2	16.7
54	.7	1.6	2.8	6.5	11.7	15.0	18.5	27.3	24.0	196.3	185.0	1.0	4.1	9.4	17.1
55	.7	1.7	2.9	6.6	12.0	15.4	19.0	28.0	24.5	192.1	184.4	1.0	4.2	9.6	17.5
56	.8	1.7	3.0	6.8	12.2	15.7	19.4	28.7	24.9	188.1	183.8	1.1	4.3	9.8	17.9
57	.8	1.7	3.0	6.9	12.4	16.1	19.9	29.4	25.4	184.2	183.2	1.1	4.4	10.0	18.3
58	.8	1.8	3.1	7.1	12.7	16.5	20.4	30.1	25.9	180.4	182.6	1.1	4.5	10.3	18.7
59	.8	1.8	3.2	7.2	13.0	16.8	20.9	30.8	26.3	176.7	181.9	1.1	4.6	10.5	19.1
60	.8	1.8	3.2	7.4	13.3	17.1	21.4	31.6	26.8	173.2	181.4	1.2	4.7	10.7	19.6
61	.8	1.8	3.3	7.5	13.6	17.5	21.9	32.4	27.3	169.8	180.7	1.2	4.8	11.0	20.0
62	.9	1.9	3.4	7.7	13.9	17.9	22.4	33.2	27.7	166.4	180.0	1.2	4.9	11.2	20.4
63	.9	1.9	3.4	7.8	14.2	18.3	22.9	34.1	28.2	163.2	179.4	1.2	5.0	11.5	20.9
64	.9	1.9	3.5	8.0	14.5	18.7	23.4	35.0	28.7	160.0	178.7	1.3	5.1	11.7	21.4
65	.9	2.0	3.6	8.2	14.9	19.2	24.0	35.9	29.1	157.0	178.1	1.3	5.2	11.9	21.9
66	.9	2.0	3.7	8.3	15.2	19.6	24.5	36.8	29.6	154.0	177.4	1.3	5.3	12.2	22.4
67	1.0	2.1	3.7	8.5	15.5	20.0	25.1	37.8	30.1	151.1	176.6	1.3	5.4	12.4	22.9
68	1.0	2.1	3.8	8.7	15.8	20.4	25.7	38.8	30.6	148.2	175.8	1.4	5.5	12.7	23.4
69	1.0	2.2	3.9	8.8	16.1	20.8	26.3	39.8	31.1	145.5	175.2	1.4	5.6	13.0	23.9
70	1.0	2.2	3.9	9.0	16.5	21.3	2669	40.8	31.5	142.8	174.5	1.4	5.7	13.2	24.5
71	1.0	2.2	4.0	9.2	16.8	21.8	27.5	41.9	32.0	140.2	173.7	1.4	5.8	13.5	25.1
72	1.1	2.3	4.1	99.4	17.1	22.3	28.1	43.1	32.5	137.6	172.9	1.5	5.9	13.8	25.7
73	1.1	2.3	4.2	9.5	17.5	22.8	28.7	44.3	33.0	135.1	172.1	1.5	6.0	14.0	26.3
74	1.1	2.4	4.2	9.7	17.9	23.3	29.4	45.5	33.5	132.7	171.3	1.5	6.1	14.4	26.9
75	1.1	2.4	4.3	9.9	18.3	23.8	30.1	46.7	33.9	130.3	170.6	1.6	6.3	14.7	27.4
76	1.1	2.5	4.4	10.1	18.7	24.3	30.8	48.3	34.4	128.0	169.7	1.6	6.4	15.0	28.0
77	1.2	2.5	4.5	10.3	19.1	24.8	31.6	49.9	34.9	125.7	168.9	1.6	6.5	15.3	28.7
78	1.2	2.6	4.6	10.6	19.5	25.4	32.4	51.5	35.4	123.5	168.1	1.7	6.7	15.6	29.4
79	1.2	2.6	4.7	10.8	19.9	26.0	33.2	53.1	35.9	121.3	167.2	1.7	6.8	15.9	30.1
80	1.2	2.7	4.8	11.0	20.4	26.6	34.0	54.8	36.4	119.2	166.4	1.7	6.9	16.2	30.8
81	1.2	2.7	4.9	11.2	20.8	27.2	34.9	56.6	36.9	117.1	165.5	1.8	7.0	16.6	31.6
82	1.3	2.8	4.9	11.4	21.2	27.8	35.8	58.6	37.4	115.0	164.5	1.8	7.1	16.9	32.4
83	1.3	2.8	5.0	11.7	21.7	28.5	36.7	60.7	37.9	113.0	163.7	1.8	7.2	17.3	33.2
84	1.3	2.9	5.1	11.9	22.2	29.2	37.7	63.0	38.4	111.1	162.8	1.9	7.4	17.6	34.0
85	1.3	2.9	5.2	12.1	22.7	29.9	38.7	65.5	38.9	109.1	161.9	1.9	7.6	18.0	34.9
86	1.3	3.0	5.3	12.4	23.2	30.7	39.8	68.5	39.4	107.2	160.9	1.9	7.8	18.4	35.9
87	1.3	3.0	5.4	12.6	23.7	31.5	40.9	72.2	39.9	105.4	160.0	2.0	8.0	18.8	36.9
88	1.4	3.1	5.5	12.9	24.3	32.3	42.1	76.6	40.4	103.5	159.0	2.0	8.0	19.2	37.9
89	1.4	3.1	5.6	13.1	24.9	33.1	43.4	83.0	40.9	101.8	158.1	2.0	8.2	19.6	38.9
90	1.4	3.2	5.7	13.4	25.5	33.9	44.7	100.0	41.4	100.0	157.1	2.0	8.4	20.0	40.0

Table by J.F.C. Retraced by E.C.W. Milwaukee, Wis. 6-13-35.

DIAGRAM ILLUSTRATING USE OF

TABLES ON PRECEDING PAGES.



I = 46°

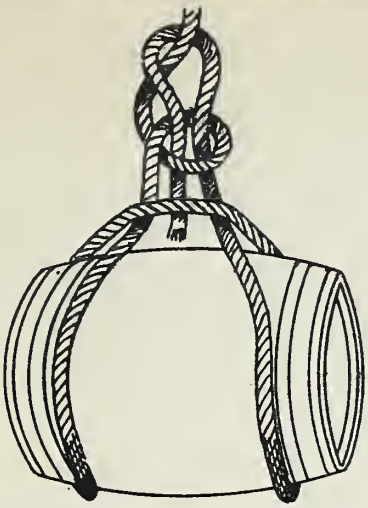
T = 200'

(Multiply tabular value by 2)

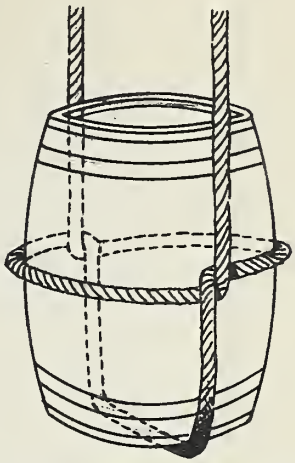
Locator establishes tangents and P.I. and decides tangent distance for each curve.

Chainman sets station stakes, P.I. stake and stakes to be offset for curve.

Compassman takes the bearings, calculates angle of intersection, and offsets curve stakes to proper center line position.

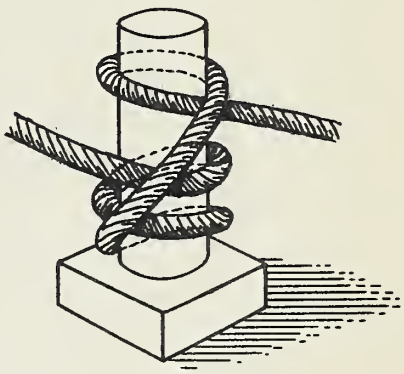


Sling for barrel horizontal

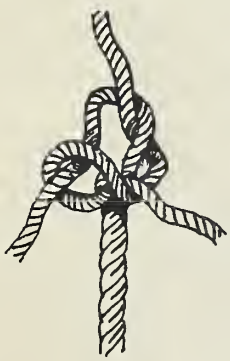


Sling for barrel vertical

Blackwall Hitch



Mooring Knot



Wall Knot

Wall Knot

Crown on Wall